State of Louisiana
Department of Natural Resources
Coastal Engineering Division

2005/2006 Annual Inspection Report

for

LAKE PORTAGE LAND BRIDGE PROJECT (TV-17)

State Project Number TV-17
Priority Project List 8

October 20, 2005
Vermilion Parish

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I. Introduction

The Lake Portage Land Bridge Protection Project is a shoreline protection project comprised of 1,540 acres (623 ha) located in Vermilion Parish, Louisiana. The project area is bounded to the south by the Gulf of Mexico and to the north by Vermilion Bay, and surrounds Lake Portage within the Paul J. Rainey Wildlife Sanctuary and the Louisiana State Wildlife Refuge, west of Southwest Pass (figure 1). This area has exhibited wetland loss of approximately 6 acres (2.4 ha) during the period 1968-1997, as indicated by habitat change analyses conducted by the USGS National Wetlands Research Center (NWRC) in Lafayette, Louisiana and the Louisiana Department of Natural Resources (LDNR). Currently, approximately 81 percent of the 1,540 total acres (623 ha) is classified as emergent marsh and the remaining 19 percent as shallow open water. The estimate of wetland loss during the next 20 years with no action taken is 24 acres (9.7 ha), or 2% of the remaining emergent marsh area.

The marsh area is characterized as brackish, with vegetation dominated by *Spartina patens* (marshhay cordgrass), *Schoenoplectus robustus* (sturdy bulrush), *Schoenoplectus americanus* (chairmaker's bulrush), and *Juncus roemerianus* (needlegrass rush). Spoilbank vegetation is dominated by *Sesbania drummondii* (rattlebox) and *Baccharis halimifolia* (saltbush). Vegetation occurring adjacent to the shoreline is characterized by *Distichlis spicata* (saltgrass), *Borrichia frutescens* (bushy seaside tansy), *Spartina alterniflora* (smooth cordgrass), *Schoenoplectus pungens* (common three-square), and *Fimbristylis castanea* (marsh fimbry) (USDA-NRCS 2002).

Wetland loss in the project area has occurred in the form of conversion of beach and brackish marsh to open water. The high-energy of the Gulf of Mexico has accelerated wave-induced erosion of the southern shoreline. A shoreline change study by Byrnes et al. (1995) found the mean shoreline retreat rate for the chenier plain from Cheniere au Tigre to Southwest Pass to be 9.5 ft/yr (2.9 m/yr) between 1883 and 1994. This loss has resulted primarily from erosional scouring from the same littoral currents that can also contribute to sediment accretion. These littoral currents from the Atchafalaya River and Wax Lake Outlet to the east cause sediment accretion during periods of slow velocity, and cause scouring as current velocity increases due to storms and anthropogenic factors such as the removal of reef shell from Southwest Pass near Marsh Island.

The objective of this project is to backfill the canal associated with the Trunkline Gas Company Pipeline located to the north and south of Lake Portage, using approximately 44,000 yd^3 (33,640 m^3) of dedicated dredge material. The canal is approximately 5,976 ft (1,821 m) long, 90 feet (27 m) wide and 3 feet (0.9 m) deep. Refurbishment of the east levee of the canal will also be required in order to allow for marsh creation to a sufficient elevation. The south end of the canal is connected to the Gulf of Mexico on high tides by a small tributary approximately 4 ft (1.2 m) wide and 2 ft (0.61 m) deep. The canal is otherwise insulated to the south from the Gulf by approximately 1,800 ft (548.6 m) of marsh. Construction was completed in December, 2004.

II. Inspection Purpose and Procedures

The purpose of the annual inspection of the Lake Portage Land Bridge Project (TV-17) is to evaluate the constructed project features to identify any deficiencies and prepare a report detailing the condition of project features and recommended corrective actions needed. Should it be determined that corrective actions are needed, LDNR shall provide, in the report, a detailed cost estimate for engineering, design, supervision, inspection, and construction contingencies, and an assessment of the urgency of such repairs (O&M Plan, 2004). The annual inspection report also contains a summary of maintenance projects which were completed since completion of constructed project features and an estimated projected budget for the upcoming three (3) years for operation, maintenance and rehabilitation. The three (3) year projected operation and maintenance budget is shown in Appendix C. A summary of past operation and maintenance projects completed since completion of the Lake Portage Land Bridge Project are outlined in Section IV.

In 2003, the CWPPRA Task Force determined, due to the fact that LDNR was responsible for the operation and maintenance phase of the vast majority of CWPPRA projects, that LDNR would be the responsible party for all Post Storm/Hurricane Assessments. After Hurricanes Katrina and Rita, every project appeared to have been impacted by the storms; therefore, LDNR determined that all projects should be assessed for damages (Broussard, 2006). With concurrence from the federal sponsor, LDNR has decided to use the information obtained during this post hurricane assessment in this Annual Maintenance Inspection.

An inspection of the Lake Portage Land Bridge Project (TV-17) was held on October 20, 2005 under clear skies and warm temperatures. In attendance were Darrell Pontiff from LDNR, Loland Broussard representing NRCS, Troy Blair and Justin Blake representing LDWF. The annual inspection began at approximately 10:00 a.m. at the bulkhead of Area 1 and ended at approximately 12:00 p.m. at the earthen plug/timber bulkhead on the northern end of Area 3.

The field inspection included a complete visual inspection of most of the project features. Photographs were taken at each project feature (see Appendix B) and Field Inspection notes were completed in the field to record measurements and deficiencies (see Appendix D).

III. Project Description and History

In 1971 Sea Robin Pipeline Company (now owned by Trunkline Gas Co.) constructed a 36-inch natural gas pipeline originating offshore in the Gulf of Mexico. It traverses north and south through the Louisiana Wildlife Management Area Game Preserve and the Paul J. Rainey Wildlife Sanctuary, through Vermilion Bay to Henry, Louisiana. Pre-cast articulating concrete block mat systems were constructed at the Gulf shoreline. They are modular in design and are attached by stainless steel cables. They protect underlying subgrades while allowing beneficial vegetative growth. An earthen dike was also constructed approximately midway between the Gulf and Lake Portage, as was a wooden bulkhead at the south shore of Lake Portage. Since that time significant erosion has begun to occur on both the east and west

sides of the Gobi Mats. Also, the earthen dike and wooden bulkhead have been breached leaving the pipeline canal susceptible to tidal exchange between the Gulf and Lake Portage and eventually Vermilion Bay.

The proposed Lake Portage Land Bridge Project will backfill the gas pipeline canal to a settled target elevation (2.0 NAVD88) from Vermilion Bay to the Gulf of Mexico with material dredged from Vermilion Bay. The 1,540-acre project area is bounded by Vermilion Bay to the
north and the Gulf of Mexico to the south, and is comprised of approximately 81 percent emergent marsh and 19 percent open water.

The work within the project consisted of building up existing spoil banks around Areas 1 and 3 for containment of the dredged material. Material was then hydraulically dredged from within Vermilion Bay and pumped into the containment areas. Also, dredge material was pumped into an unconfined Area 2 which is south of the confined Area 1. The dredge material was pumped to an elevation of +3.5 within Areas 1 and 3, and to an elevation of +2.0 in Area 2. The final constructed features of this project include the placement of 40,900 cubic yards of hydraulically dredged material within Areas 1, 2 and 3.

Also, approximately 8,527 linear feet of existing spoil was raised in locations as needed to form a containment dike to an elevation of +4.0 around Areas 1 & 3. Where raising of the existing spoil was necessary, the containment dike was constructed with a minimum 6 foot top width with 3 horizontal to 1 vertical side slopes.

A 15 inch diameter PVC pipe with weir notch was installed in the south containment dike of Area 3 that drains the contained area into Lake Portage.

IV. Summary of Past Operation and Maintenance Projects

General Maintenance: Such that this is a recently constructed project there are no past operation and maintenance events to report. In addition, there are no structures that require any type of operation.

V. Inspection Results

Area 1 (Station 0+00 to 22+99, between Lake Portage and Earthen Plug)

Area 1 is in good condition and vegetation has continued to expand from the containment banks moving towards the center of the channel. Recent aerial photographs taken by LDWF show increased vegetation growth which should continue with warmer temperatures into the future. In some areas the entire channel width was vegetated. The center part of the filled in channel was wet, passable only by airboat, and is still draining storm surge water from Hurricane Rita. Salinity was measured at 14 ppt in the channel area. As a result of the

inspection of Area 1, LDNR and NRCS agree that no corrective actions will be required this year. (Photos: Appendix B, Photo 1).

Area 2 (Station 0+00 to 18+26, between Earthen Plug and Gulf of Mexico)

Area 2 is also in good condition and is fully vegetated, such that this reach was preexisting with additional dredge material added through this project to fill in any trevasses. Some erosion along the ends of the concrete mats along the Gulf shoreline has occurred due to Hurricane Rita. Salinity was measured at 16.5 ppt in the Gulf waters. LDNR and NRCS agree that no maintenance will be required at this time; however this area needs to be monitored closely on future annual inspections. (Photos: Appendix B, Photos 2, 3, 4, & 5).

Area 3 (Station 0+00 to 18+06, between Vermilion Bay and Lake Portage)

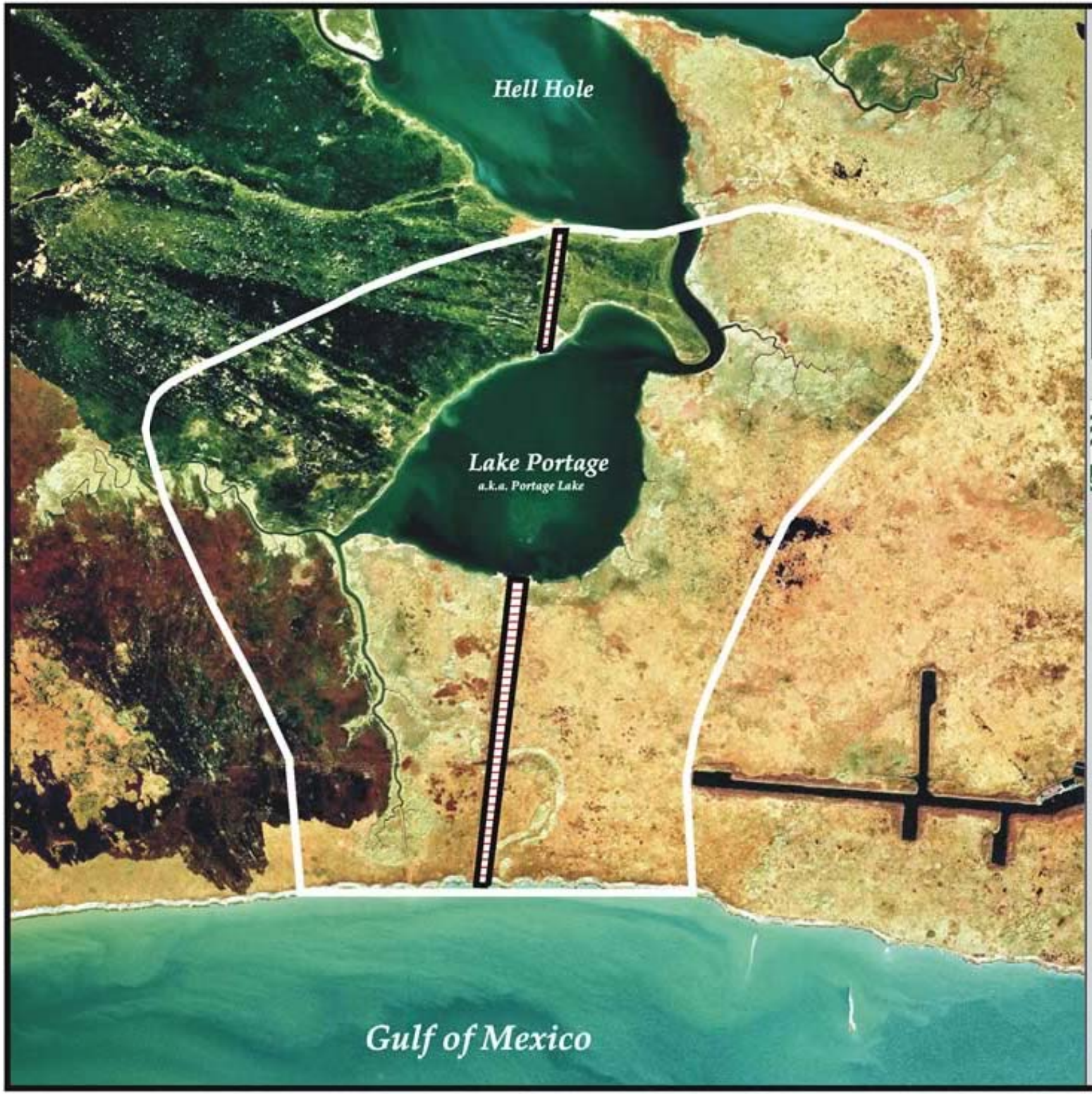
Area 3 also is in good condition. The northern part of this reach is fully vegetated, mainly due to the fact that this reach was constructed first, and has been in place since May, 2003. There is some minor erosion occurring on each side of the northern timber bulkhead which will need to be monitored on future annual inspections. LDNR and NRCS agree that this area is in good condition and no maintenance will be required at this time. (Photos: Appendix B, Photos 6, 7, & 8).

VI. Conclusions and Recommendations

Overall, the Lake Portage Land Bridge Project is in good condition and functioning as designed, and withstood the tidal impacts of Hurricane Rita without any major damage. Additional time and warmer temperatures will allow for further and complete vegetation of Area 1.

Appendix A

Project Features Map



Lake Portage Land Bridge (TV-17)

Marsh Creation/ Canal Backfill

Project Boundary

USGS science for a changing world

1500 0 1500 Feet

500 0 500 Meters

Map Produced By:
U.S. Department of the Interior
U.S. Geological Survey
National Wetlands Research Center
Coastal Restoration Field Station

Background Imagery:
1998 Digital Orthophoto Quarter Quadrangle

Map Date: November 27, 2002
Map ID: USGS-NWRC 2003-11-013
Data accurate as of: November 27, 2002

Appendix B

Photographs

Photo 1, Area 1, Post Hurricane Rita. Note vegetation has completely filled in the plug area in some places.

Photo 2, Area 2, Post Hurricane Rita, West side of concrete mats.

Photo 3, Area 2, Post Hurricane Rita, Close up view of erosion on west side of concrete mats.

Photo 4, Area 2, Post Hurricane Rita, East side of concrete mats.

Photo 5, Area 2, Post Hurricane Rita, Close up view of erosion on east side of concrete mats.

Photo 6, Area 3, Post Hurricane Rita, Still fully vegetated.

Photo 7, Area 3, Post Hurricane Rita, Showing erosion along east side of timber bulkhead.

Photo 8, Area 3, Post Hurricane Rita, Showing erosion along west side of timber bulkhead.

Appendix C

Three Year Budget Projection

LAKE PORTAGE/ TV-17 / PPL 8

Three-Year Operations & Maintenance Budgets 07/01/2005 - 06/30/08

Project Manager	O & M Manager	Federal Sponsor	Prepared By
Pat Landry	*Darrell Pontiff*	*NRCS*	*Darrell Pontiff*

	2005/2006	2006/2007	2007/2008
Maintenance Inspection	$ 4,955.00	$ 5,250.00	$ 5,407.00
Structure Operation			
Administration		$ -	$ -
Maintenance/Rehabilitation			

05/06 Description:

E&D	
Construction	
Construction Oversight	
Sub Total - Maint. And Rehab.	$ -

06/07 Description

E&D	$ -
Construction	$ -
Construction Oversight	$ -
Sub Total - Maint. And Rehab.	$ -

07/08 Description:

E&D	$ -
Construction	$ -
Construction Oversight	$ -
Sub Total - Maint. And Rehab.	$ -

	2005/2006	2006/2007	2007/2008
Total O&M Budgets	**$ 4,955.00**	**$ 5,250.00**	**$ 5,407.00**

O &M Budget (3 yr Total)	**$ 15,612.00**
Existing O & M Budget	**$ 96,410.00**
Remaining O & M Budget (Projected)	**$ 80,798.00**

Appendix D

Field Inspection Form

MAINTENANCE INSPECTION REPORT CHECK SHEET

Project No. / Name: TV-17 Lake Portage Landbridge

Date of Inspection: October 20, 2005 Time: 10:00 a.m.

Structure No. N/A

Inspector(s): Darrell Pontiff, Troy Blair, Justin Blake, Loland Broussard

Structure Description: Shoreline Protection

Water Level N/A

Type of Inspection: Annual

Weather Conditions: Clear and mild

Item	Condition	Physical Damage	Corrosion	Photo #	Observations and Remarks
Timber Bulkhead / Caps	Good				Some erosion each side of timber bulkhead north side of Area 3.
Steel Grating					
Salinity Readings					Intracoastal City - 4 ppt, Vermilion Bay - 9 ppt, Area 1 channel - 14 ppt, Gulf of Mexico - 16.5 ppt
Concrete Mats	Good				Some erosion each side of concrete mats along Gulf shoreline.
Timber Piles	Good				
Timber Wales					
Galv. Pile Caps					
Vegetation	Good				Area 3 fully vegetated, Area 2 existing vegetation, Area 1 vegetation spreading.
Signage /Supports	Good				
Rip Rap (fill)					
Earthen Embankment	Good				
Dredge Spoil	Good				Channel area wet, storm surge water draining, slight settlement.

What are the conditions of the existing levees?	Good
Are there any noticeable breaches?	No
Settlement of rock plugs and rock weirs?	N/A
Position of stoplogs at the time of the inspection?	N/A
Are there any signs of vandalism?	No

Appendix E

Locations to be Monitored